

CLAIMS

1. A method of detection of signals in a communication network including a mobile terminal, at least one first base station serving the mobile terminal and at least one second base station wherein the method includes mobile transmitted data detected at the first base station being used by the second base station to increase detection probability of the transmitted data by the second base station.
2. A method according to claim 1 wherein the signal received by the first base station is of sufficient quality to enable detection of the data transmitted by the signal and the detected data is used by the second base station, where the mobile terminal transmissions are not received with sufficient power for adequate detection, to enable detection of the data by the second base station.
3. A method according to claim 1 or claim 2 wherein the detection process at the second base station(s) includes detection and calculation of the received time delay caused by signal propagation due to the distance of the mobile terminal from the respective base station.
4. A method according to any one of claims 1 - 3 wherein the detection process at the second base

station(s) includes detection of the received signal power of the mobile terminal transmission signal by the second base station.

5 5. A method according to any of claims 1 - 4 wherein the communications network is a cellular communications direct sequence spread spectrum code division multiple access (DS-CDMA) system and the data is used to extend and increase the processing gain of the receiver by
10 enabling longer integration times at the base stations.

6. A method according to any one of claims 1 - 5 in which the location of the mobile terminal is determined from the network system by any one of some or all
15 of: (a) using the received time delay at each respective base station, (b) using the direction of the mobile terminal from each respective base station and, (c) a combination of received time delay and/or direction of the mobile terminal from a first base station(s) and
20 received time delay and/or direction of the mobile terminal from a second base station(s).

7. A method according to any one of claims 1 - 6 in which the data received by at least the first base
25 station is capable of identifying the mobile terminal in the network system.

8. A method according to any one of claims 1 - 7 in which the measured signal power of the mobile terminal
30 is used for hand-off preparation from a first base

station to a second base station.

9. A method according to any one of claims 1 - 8 in which the detection process at the second base station(s) includes detection of the presence of the data detected at the first base station(s).

10. A method according to any of claims 1 - 9 in which the data transmitted by the mobile terminal is unknown information data.

11. A method according to any of claims 1 - 9 in which the data transmitted by the mobile terminal is a predefined sequence.

12. A system for detection of signals in a communications network including a plurality of base stations and a mobile terminal wherein at a given time at least one of the base stations is a first serving base station and the mobile terminal is served by the first serving base station; the first serving base station is capable of receiving and detecting data transmitted to it by the mobile terminal and the detected data is usable by the first serving base station and/or at least one second base station to increase detection probability of the transmitted data.

13. A system according to claim 12 wherein the signal received by the first base station is of sufficient quality to enable detection of the data transmitted by

the signal and the second base station, where the mobile terminal transmissions are not received with sufficient power for adequate detection, includes means for using the detected data to enable detection of the data by the second base station.

14. A system according to claim 12 or 13 wherein the second base station includes means for detection and calculation of the received time delay caused by signal propagation due to the distance of the mobile terminal from the respective base station.

15. A system according to any one of claims 12 - 14 wherein the second base station includes means for detection of the received signal power of the mobile terminal transmission signal by the second base station.

16. A system according to any one of claims 12 - 15 wherein the communications network is a cellular communication direct sequence spread spectrum code division multiple access (DS-CDMA) system and it includes means for using the data to extend and increase the processing gain of the receiver by enabling longer integration times at the base stations.

17. A system according to any one of claims 12- 16 including means for the location of the mobile terminal to be determined from the network system by any one, some or all of : (a) using the received time delay at

each respective base station, (b) using the direction of the mobile terminal from each respective base station, and (c) a combination of received time delay and/or direction of the mobile terminal from a first
5 base station(s) and received time delay and/or direction of the mobile terminal from a second base station(s).

18. A system according to claims 12- 17 including
10 means for using the data received by at least the first base station to identify the mobile terminal in the network system.

19. A system according to claims 12- 18 including
15 means for using the measured signal power of the mobile terminal for hand-off preparation from a first base station to a second base station.

20. A system according to any one of claims 12 - 19 in
20 which the second base station(s) includes means for detection of the presence of the data detected at the first base station(s).

21. A method according to any of claims 12 - 20 in
25 which the data transmitted by the mobile terminal is unknown information data.

22. A method according to any of claims 12 - 20 in
30 which the data transmitted by the mobile terminal is a predefined sequence.

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23. A method of detection of signals subsequently as any one embodiment herein described or referenced to the accompanying drawings.

5 24. A system for detection of signals subsequently as any one embodiment herein described or referenced to the accompanying drawings.

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